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The Law as Stimulus: The Role of Law in Fostering Innovative Entrepreneurship

VIKTOR MAYER-SCHÖNBERGER*

Abstract: As we weather the deepest recession in recent times, lawmakers everywhere search for mechanisms to revive the economy. This paper argues that in addition to financial stimuli, the law, too, has substantial, yet underutilized capacity to foster economic growth. In particular I examine the legal system's potential to facilitate innovative entrepreneurship in difficult economic times. In Part II of the paper I suggest three distinct roles – leveling, protecting, and enabling – that law can play to foster entrepreneurship. Part III develops a comprehensive framework for crafting laws that facilitate entrepreneurship based on the theory of risk. Utilizing expected utility theory I explain why lawmakers may want to focus less on direct financial losses or gains for entrepreneurs (like subsidies or tax breaks), and more on information by improving the predictability of legal processes. Insights from behavioral economics take this one step further by suggesting lawmakers need to be careful how they frame laws intended to facilitate entrepreneurship. Such a risk-based framework rests on two important assumptions: that the linearity of the innovation process and the central importance of the individual entrepreneur rarely happen in practice. Thus,

* Director and Associate Professor of Public Policy, The LKY School of Public Policy, National University of Singapore, and faculty affiliate BCSIA, Harvard University. Earlier versions of this paper have been presented at symposia at Stanford University, the Searle Center on Law, Regulation, and Economic Growth, Northwestern University School of Law, and the Hudson Institute. I am grateful for the feedback from colleagues at these events, as well as the research help of Malte Ziewitz, Ben Roberts, and Shakhi Majumdar.

Part IV of the paper shows how through a more nuanced understanding of innovation, law may take on a significantly more active role: not be conceptualized as static and exogenous, but potentially entrepreneurial in nature, thereby actively creating market tensions that entrepreneurs then successfully exploit. More research is needed to better understand such an active role of the law, but it could offer lawmakers a much more powerful tool at their disposal to shape entrepreneurial activity in our nation than has been thought so far.

I. INTRODUCTION

In late 2008 and 2009, the world economy suffered a severe and sharp recession. Economic output shrunk at an unprecedented rate. Around the world, governments enacted massive programs to resuscitate the economy, to stimulate demand, and to revive entrepreneurial activity.[1] In this article I suggest, perhaps counter-intuitively, that the legal system may provide an additional, yet ill-understood and hence underutilized mechanism to stimulate domestic entrepreneurship, one of the central pillars in revitalizing economic growth.

More than sixty years ago, Joseph A. Schumpeter famously described entrepreneurs as the ones who successfully bring to market an invention.[2] Schumpeter saw the entrepreneur as somebody who disdains equilibrium and breaks the rules of the establishment.[3] His

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[1] *See* Economic Stimulus Act of 2008, Pub. L. No. 110-185, 122 Stat. 613 (2008). For Australia, *see* Emma Rodgers, *Stimulus package passes Senate*, ABC NEWS, Feb. 13, 2009, http://www.abc.net.au/news/stories/2009/02/13/2490674.htm (last visited Apr. 18, 2010). For the UK, *see* William L. Watts, *Britain unveils tax cuts, stimulus measures*, MARKETWATCH, Nov. 24, 2008, http://www.marketwatch.com/story/uk-unveils-30-billion-stimulus-plan (last visited Apr. 18, 2010). For Germany, *see Gesetz zur Sicherung von Beschäftigung und Stabilität in Deutschland*, BUNDESMINISTERIUM DER FINANZEN, http://www.bundesfinanzministerium.de/nn_69120/DE/BMF__Startseite/Aktuelles/Aktuelle__Gesetze/Gesetze__Verordnungen/031__Konjunkturpaket__2.html?__nnn=true (last visited Apr. 18, 2010).

[2] JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY (5th ed. 1976). In this paper I focus on entrepreneurs in the Schumpeterian sense, not on those that found businesses without offering something new (more correctly called self-employment), and not on activities in the non-profit sector, and not on activities within a large organization (often called "intrapreneurship") (Karina S. Christensen, *Enabling Intrapreneurship: The Case of a Knowledge-Intensive Industrial Company*, 8 EUR. J. INNOVATION MGMT. 305 (2005)).

[3] SCHUMPETER, *supra* note 2, at 74.

entrepreneurs disrupt existing market balances by introducing new products, new methods of production, devising new business models, or opening new markets.[4] In contrast, the legal system seems to constrain activity and to set rules. Entrepreneurs are seen as disdaining such rules, and do not hesitate to break them. Law promises certainty. Entrepreneurs thrive on risk.

This article focuses on the apparent tension between entrepreneurship and the law, and examines the relationship more generally before suggesting an alternative conceptualization of how law stimulates rather than stifles entrepreneurial activities.[5] Part II questions the popular view of law choking entrepreneurship and suggests three ways the legal system may be employed to facilitate entrepreneurial activity. Part III develops a more complete framework of entrepreneurial activity based on risk that offers a conceptual understanding of how law can foster entrepreneurial activity. However, such frameworks portraying the legal system as performing a purely supportive role are vulnerable to fundamental criticism. Hence, I suggest in part IV that the interaction between entrepreneurship and law must be rethought. To that end, I look at the innovation dynamic and offer an alternative viewpoint by suggesting that elements of entrepreneurship be injected into law itself. Part V briefly concludes highlighting the much richer dynamic between innovative entrepreneurship and the law.

II. ANALYZING AN UNEASY RELATIONSHIP

Given the desire of the modern state to regulate many areas of human activity, it is easy to understand what Schumpeter has characterized as entrepreneurs' disdain for law. Consider the following limitations that law may impose on entrepreneurship:

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[4] SCHUMPETER, *supra* note 2, at 83, 132. *See also* David M. Hart, *Entrepreneurship Policy: What It Is and Where It Came From*, *in* THE EMERGENCE OF ENTREPRENEURSHIP POLICY: GOVERNANCE, START-UPS, AND GROWTH IN THE U.S. KNOWLEDGE ECONOMY 5 (David M. Hart ed., 2003); D. Gordon Smith & Masako Ueda, *Can Silicon Valley Be Cloned?*, 1 ENTREPRENEURIAL BUS. L.J. 231, 232 (2006).

[5] For earlier works on entrepreneurship and the law, *see* Steven H. Hobbs, *Toward a Theory of Law & Entrepreneurship*, 26 CAP. U.L. REV 241 (1997); Amir N. Licht, *The Entrepreneurial Spirit and What the Law Can Do About It*, 28 COMP. LABOR LAW & POL'Y JOURNAL 817 (2007); Viktor Mayer-Schönberger, *E-Commerce, Entrepreneurship and the Law: Reassessing a Relationship*, THE EMERGENCE OF ENTREPRENEURSHIP POLICY, *supra* note 4, at 195; Simon C. Parker, *Law and the Economics of Entrepreneurship*, 28 COMP. LAB. L. & POL'Y J. 695 (2007); Smith & Ueda, *supra* note 4.

- Labor laws may restrict the ability of start-ups to hire and fire as their business situation demands.[6] Rules regarding notice and severance payments may increase the cost of human resources at precipitous moments in a fledging company's life.[7] Legal restrictions on stock option grants may limit entrepreneurs' ability to attract top talent without incurring significant cost.[8]

- Health and safety regulations make product development more cumbersome and time-

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[6] Hiring practices are particularly impacted by antidiscrimination laws. Key federal antidiscrimination statutes include Title VII of the Civil Rights Act of 1964 (42 U.S.C. §§ 1981, 2000e-2000e-17 (2007)), the Age Discrimination in Employment Act (29 U.S.C. §§ 621-634 (2007)), and the Americans with Disabilities Act of 1990 (42 U.S.C. §§ 12101-12213 (2007)). Many states have also passed anti-discrimination provisions specifically applicable to small businesses. *See* FRED S. STEINGOLD, THE EMPLOYERS LEGAL HANDBOOK (7th ed. 2005). Although the "employment-at-will" doctrine that governs termination of employment relationships affords considerable freedom in firing decisions, many statutory and common law protections curtail this freedom. The statutory protections stem broadly from the federal antidiscrimination statutes as well as more narrow provisions, such as restrictions on termination due to filing of workers' compensation or other claims. *See* Elletta S. Callahan, *Employment at Will: The Relationship Between Societal Expectations and the Law*, 28 AM. BUS. L.J. 455, 457–58 (1990). Common law protections include imposing a duty of good faith and fair dealing, public policy exceptions and implied-in-fact contract terms. Lindsay B. Jackson, *A Lesson From Germany on How the United States Could Reform Its Laws on Dismissal*, 4 GEO. J.L. & PUB. POL'Y 522, 532–34 (2006); *see also* Parker, *supra* note 5, at 704–05.

[7] In the US, severance and notice provisions are of particular significance in many standard form contract provisions and collective bargaining agreements. However, current reform proposals such as the Model Employment Termination Act would incorporate much more stringent severance and notice provisions. *See* Daniel J. Libenson, *Leasing Human Capital: Toward a New Foundation for Employment Termination Law*, 27 BERKELEY J. EMP. & LAB. L. 111 (2006).

[8] For a general discussion on stock option based compensation, *see* William Lazonick, *The Innovative Firm*, *in* THE OXFORD HANDBOOK OF INNOVATION 29, 46–49 (Jan Fagerberg, David C. Mowery & Richard R. Nelson eds., 2005). Regulatory restrictions on stock options include mandatory expensing of option grants (Accounting for Stock-Based Compensation, FASB 123 (1995)), required shareholder ratification of option grants as executive compensation, and compensation committee requirements (I.R.C. § 162(m) (2007); NYSE Listed Company Manual Section 303A.08 (2004); NASD Manual R. 4350(i) (2005)).

consuming, especially in the life sciences.[9] Moreover, specific privacy laws for health and financial services, for example, may prevent entrepreneurs from reusing and linking personal data for targeted marketing or resale to other corporations, thus reducing the value of data the entrepreneur has collected at significant cost.[10] Consumer protection laws may limit what business transactions entrepreneurs can engage in when the other party is a consumer. Product liability laws may force entrepreneurs to take out expensive insurance policies to protect themselves from costly tort claims.[11]

- Intellectual property laws reduce what new products and services entrepreneurs can offer. Incumbent producers may use their patents, copyrights, and trademarks to prevent or hinder new products and services that threaten their

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[9] The bulk of general U.S. health and safety regulation is found in the Food and Drug Act, codified in Title 21 of the United States Code. These regulations are particularly onerous for life sciences companies such as pharmaceuticals, where the average cost of clinical testing per drug is about $0.5 billion and only one of five drugs submitted to such testing are approved by the FDA. ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004).

[10] Examples include the Fair Credit Reporting Act of 1970 (15 U.S.C. § 1681 (2007)), the Fair and Accurate Credit Transactions Act of 2003 (Pub. L. No. 108-159, 117 Stat. 1952 (2003) (amending the FCRA to create more stringent measures against identity theft by increasing consumer opt-out rights)), the Gramm-Leach-Bliley Act ((16 C.F.R. pt. 313 (2000) (limiting when financial institutions may disclose nonpublic consumer information to nonaffiliated third parties)), and the Health Insurance Portability and Accountability Act of 1996 ((Pub. L. No. 104-191, 110 Stat. 1036 (1996) (limiting disclosure of consumer medical information)).

[11] Key federal consumer protection statutes include the Magnuson-Moss Consumer Warranty Act (15 U.S.C.S. ch. 50 (2007)), the Consumer Credit Protection Act (15 U.S.C. ch. 41 (2007)), the Fair Debt Collection Practices Act (15 U.S.C. § 1692 (2007)), the Truth in Lending Act (TILA) (15 U.S.C. § 1601 et. seq. (2007)), and Regulation Z (12 C.F.R. pt. 226 (2007) (implementing TILA)). Examples of product liability statutes include the Consumer Product Safety Act (15 U.S.C. ch. 47 (2007)) and the Federal Hazardous Substance Act (15 U.S.C.S. § 1261).

market position.[12] Even a sufficiently novel service may run into severe legal troubles if courts see it as encouraging others to impede on existing intellectual property rights.[13]

- Entrepreneurs may violate criminal statutes by offering certain information or services in jurisdictions where these are prohibited. This goes far beyond questionable business areas such as porn and gambling. Even mainline entrepreneurial stalwarts like AOL[14] have at times been threatened with criminal prosecution.

- Limitations placed on venture funding, initial public offerings, and mergers may make it harder and more costly for entrepreneurs to sell or fund their ventures. Stringent procedures

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[12] For example, Apple's iPod fell victim to Creative Technology's "Zen Patent." *See* Christopher Breen, *$100 million payment ends all pending litigation: Apple settles Creative lawsuits*, MACWORLD, Nov. 1, 2006, at 20. Similarly, Research in Motion (RIM) faced a high-profile patent infringement suit by over the Blackberry. *See* NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2005).

[13] A classic case is the litigation over the use of the Sony Betamax to record television programs. *See* Sony Corp. of America v. Universal City Studios, Inc., 464 U.S. 417 (1984). For more recent examples, *see* In re Napster Inc. Copyright Litigation, 2007 U.S. App. LEXIS 5836 (9th Cir.); A&M Records, Inc. v. Napster, Inc., 284 F.3d 1091 (9th Cir. 2002); Joshua Chaffin & Andrew Edgecliffe-Johnson, *Music groups notch up piracy victory: Illegal downloads*, FIN'L TIMES, July 28, 2006, at 7; *MGM Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005)); Atlantic Recording Corp. v. XM Satellite Radio, Inc., 2007 U.S. Dist. LEXIS 4290 (S.D.N.Y.)). Another product speculated to trigger possible litigation is the "Slingbox." *See* Karen Brown, *Mobile gets into the Hollywood picture*, MULTICHANNEL NEWS, Sept. 18, 2006, at 12; *see also* Gary Shapiro, *Fair use: protecting innovation*, BUSINESSWEEK.COM, Mar. 13, 2007, *available at* http://www.businessweek.com/technology/content/mar2007/tc20070313_858999.htm (last visited Apr. 18, 2010)).

[14] Compuserve, an AOL subsidiary, was prosecuted in Germany for disseminating on-line pornography. *See* Silvia Ascarelli & Kimberley A. Strassel, *Two German Cases Show How Europe Still Is Struggling to Regulate Internet*, WALL ST. J., Apr. 21, 1997, at B9; "Sex on the Internet," THE ECONOMIST, January 6, 1996, p. 18, where the author inquires, "[w]hen Bavaria wrinkles its nose, must the whole world catch a cold?" *See generally* Ulrich Sieber, Strafrechtliche Verantwortlichkeit für den Datenverkehr in internationalen Computernetzen, JZ 429 (1996).

> and reporting requirements, like those required by the Sarbanes-Oxley Act,[15] are said to cost companies an average of one percent of revenue.[16]

Not surprisingly, many entrepreneurs view the legal system as their enemy.[17] Nothing summarizes this better than a line from Apple Computer's famous advertisement "Think Different." The ad features a number of short clips depicting famous artists, Nobel laureates, scientists, societal leaders, and successful entrepreneurs. In the background, a somber narrating voice characterizes them all as people who see things differently, change society and push "the human race forward."[18] The narrator emphasizes that these trailblazers "are not fond of rules, and they have no respect for the status quo."[19] Conceived this way, entrepreneurs, like their colleagues in the arts and sciences, cannot help but break the rules and violate the codes of the status quo. That is their defining quality. The law is seen as holding them back and thereby preventing them – and society – from reaching their full potential.

Describing the relationship between entrepreneurs and the law in entirely antagonistic terms obscures the complex relationship between the two. In at least three ways, the legal system can facilitate

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[15] Sarbanes Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (2002).

[16] "Hackett: Sarbanes-Oxley Drives Biggest Finance Cost Rise in 13 Years," DMReview, September 27, 2005, *available at* http://www.dmreview.com/article_sub.cfm?articleId=1038128 (last visited Apr. 18, 2010); *cf.* "Restoring the shine," THE ECONOMIST, November 30, 2006.

[17] *See e.g.*, Richard Goossen, *What Entrepreneurs and their Lawyers Should Know about Each Other*, 3 MINN. J. BUS. L. & ENTREP. 3, 5–6 (2004).

[18] Video: "Think Different" Advertisement by Apple, http://www.youtube.com/watch?v=jULUGHJCCj4 (last visited Apr. 18, 2010).

[19] *Id.*

entrepreneurial activity.[20] Law can be a leveler, a protector, and an enforcer.[21]

A. LAW AS LEVELER

Not every new regulation limits what entrepreneurs can do.[22] On the contrary, regulations can create windows of opportunity for entrepreneurs to enter existing markets or create new ones. Since at least the 1970s, many entrepreneurs have first advocated for and then welcomed the "liberalization" of specific economic sectors. In particular, this liberalization has swept through network industries. For example, airlines were deregulated in the United States in the late 1970s.[23] New airlines were started, competition heated up, and ticket prices came down.[24] Just a few years later, AT&T's telecommunications monopoly was broken, mostly through legal and regulatory measures.[25] Successful old-fashioned monopolies and cozy

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[20] For a recent view that law does not matter much for entrepreneurial activity, *see* Jeffrey M. Lipshaw, *Why the Law of Entrepreneurship Barely Matters: Rules, Cognition, and the Antinomies of Transactional Practice* (2007), *available at* http://ssrn.com/abstract=954400 (last visited Apr. 18, 2010).

[21] The following section draws from Viktor Mayer-Schönberger, *E-Commerce, Entrepreneurship and the Law*, *in* THE EMERGENCE OF ENTREPRENEURSHIP POLICY 193, 196–208 (David Hart ed., 2003).

[22] Commentators haven often argued that regulations are detrimental to markets; *cf.* Harold W. Furchtgott-Roth, Commissioner, Federal Communication Commission, Before the National Association of Broadcasters, Radio Show Financial Breakfast, October 15, 1998, http://www.fcc.gov/Speeches/Furchtgott_Roth/sphfr815.html (last visited Apr. 18, 2010) ("regulation is an impediment to markets. And excessive regulation, frankly, destroys markets."). It is important to note, however, that even if a regulation is a market impediment under classical economic theory, it may facilitate entrepreneurial activity and thus be beneficial in a Schumpeterian (and Hayekian) view of the market; *see infra* notes 69–70 and accompanying text.

[23] *See* Roger Sherman, *The Future of Market Regulation*, 67 S. ECON. J. 782, 788–90 (2001) (discussing history leading up to the Airline Deregulation Act of 1978).

[24] While not all passenger fares are lower than pre-deregulation, studies show that airline fares are roughly 25% lower than what would be expected under regulation. Steven A. Morrison & Clifford Winston, *The Remaining Role for Government Policy in The Deregulated Airline Industry*, *in* DEREGULATION OF NETWORK INDUSTRIES: WHAT'S NEXT? (Sam Peltzman & Clifford Winston eds., 2000); *see* Airline Deregulation Act of 1978, Pub. L. No. 95-504, 92 Stat. 1705 (codified as amended in various sections of 49 U.S.C.).

[25] *See* U.S. v. Am. Tel. & Tel. Co., 552 F. Supp. 131 (D.C. 1982); *see* Sherman, *supra* note 23, at 792–93 (discussing telecommunications deregulation in the United States); *see also*

oligopolies have been replaced with vibrant markets that offer higher quality goods and services at lower prices.[26]

The energy sector and postal services, too, have seen deregulation on both sides of the Atlantic over the past few decades, and so has rail transport in Europe.[27] The financial services sector and, to a lesser extent, the professional services industry have experienced similar changes,[28] albeit with a dramatically different outcome for the economy.

For entrepreneurs, the story may look simple: once burdensome regulations that fostered and facilitated non-competitive market conditions were abolished, entrepreneurial spirit and Adam Smith's invisible hand took over. Little surprise then that the process is often termed "liberalization" or "deregulation," as if markets needed to be liberated from stifling regulatory measures.

Such a view, however, overlooks that competitiveness is not necessarily a natural condition to which markets automatically revert once a stifling regulatory framework has been lifted. Some markets tend to favor first movers, large players, and incumbents, making it hard for entrepreneurs to take root. Abolishing the existing regulatory

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ROBERT W. CRANDALL, AFTER THE BREAKUP: U.S. TELECOMMUNICATIONS IN A MORE COMPETITIVE ERA (1991).

[26] *See* C. Eldering, *Impact and Results of Telecommunications Deregulation*, 37 IEEE COMMUNICATION MAGAZINE 98 (1999); *cf.* Sharon Reier, *Businesses Likely to Save Most: Who Stand to Win Deregulation Payoff*, INTERNATIONAL HERALD TRIBUNE, Mar. 13, 1997 (reporting that in France long distance rates had been increased by 25 and 40 percent in subsequent years); for Latin America, *see Telephone Calls*, THE ECONOMIST, Jan. 31, 2002.

[27] *See* Sherman, *supra* note 23, at 793–96 (discussing electricity deregulation in the United States); John Kay, et. al., *Regulatory Reform in Britain*, 3 ECONOMIC POLICY 285, 292-96 (1988) (discussing utilities deregulation in the United Kingdom); J. GREGORY SIDAK, GOVERNING THE POSTAL SERVICE (1995) (discussing regulation of the United States Postal Service); Adrienne Hértier, *Public-Interest Services Revisited*, 9 J. EUR. PUB. POL'Y 995, 996–1003, 1006–07 (2002) (discussing deregulation of rail transport in Great Britain, Germany and France and deregulation of the postal service in Germany); and Ernst R. Berndt, et. al., *Cost Effect of Mergers and Deregulation in the U.S. Railroad Industry*, 4 J. PRODUCTIVITY ANALYSIS 127 (1993) (discussing deregulation of the railroad industry in the United States).

[28] *See* Henry N. Pontell & Kitty Calavita, *The Savings and Loan Industry*, 18 CRIME AND JUSTICE 203, 205–10 (1993) (discussing deregulation in the U.S. savings and loan industry); Randall S. Kroszner & Philip E. Strahan, *What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions*, 114 Q.J. ECON. 1437 (1999) (discussing deregulation of commercial banks in the United States); and Ernst Baltensperger, et. al., *Banking Deregulation in Europe*, 2 ECON. POL'Y 63 (1987) (discussing deregulation of the banking industry in Europe).

framework in such markets would likely strengthen the incumbents' grip, not bring more competition.

Berkeley professor Stephen Vogel and others have demonstrated eloquently that markets often require not a legal void to be successfully "liberalized," but rather a skillfully crafted and carefully implemented legal framework that offers newcomers a chance to enter and stay competitive.[29] What is necessary is not *de*regulation, but *re*regulation – replacing the existing regulatory framework that permitted uncompetitive market conditions to prevail with a regulatory setup that facilitates the introduction of competitive forces, but without creating perverse incentives.

At first glance, this may sound counterintuitive. But where a sector is dominated by powerful monopolies or oligopolies, merely abolishing the existing regulatory framework may leave new entrants vulnerable to be squashed by powerful incumbents. This is particularly true for network industries – like telecommunications, energy and transport – which require new entrants to build up a network infrastructure that incumbents have already put in place and paid for through quasi-monopoly rents.[30]

Left to the market, incumbents could engage in a price war with new entrants that they – with greater resources and an already existing network – would likely win. Moreover, in many markets, such as telecommunications, new entrants generally need to connect to the networks of incumbents at a reasonable price. Without regulations to force incumbents to allow such linkages, potential challengers can be stopped before they even begin. Successful reregulation takes into account these power imbalances by restricting what incumbents can do to head off competition.

At the same time, as the disaster in deregulating the financial services sector demonstrates, new entrants must not receive preferential treatment above and beyond the rebalancing necessitated by the previous monopolistic market power of incumbents. If they do, they fail to create a sustainable entrepreneurial alternative in the market.[31] The challenge of reregulation is to find the appropriate

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[29] *See* STEVEN K. VOGEL, FREER MARKETS, MORE RULES – REGULATORY REFORM IN ADVANCED INDUSTRIAL COUNTRIES (1996).

[30] *See* DEREGULATION OF NETWORK INDUSTRIES: WHAT'S NEXT?, *supra* note 24.

[31] This points towards a debate among economists about the role of monopolistic rights for entrepreneurs. Schumpeter favored giving entrepreneurs monopolies over their ideas, for example in the form of patent rights, for a limited period of time as a societal incentive for entrepreneurs to innovate. Schumpeter, *supra* note 2, at 81-106. However, Schumpeter has been disputed on this point. Kenneth Arrow, *Economic Welfare and the Allocation of*

balance that offers incentives for all market players, incumbents and new entrants.

Consequently, a re-regulatory framework must fulfill two tasks. First, it must replace the old, noncompetitive setup by opening a sector to entrepreneurial entrants. Second, it must set out a framework that ensures sustainable competition (and not ill-founded "bubbles"), even when the new entrants have become powerful players themselves. Thus, Stephen Vogel entitled his book *Freer Markets, More Rules*.[32]

Many entrepreneurs have benefited from new regulatory frameworks. America West was able to enter the airline market and grow into one of the United States' largest airlines after the reregulation of the airline industry.[33] Nextel was able to seize a sizeable portion of the mobile communication market thanks to reregulation.[34] New internet access providers and network operators exist because of the re-regulation of the telecommunications sector, whereas resellers of excess energy are enabled by similar developments in the energy markets. The reregulation of financial services in the United States, while highly problematic in fostering unchecked securitization, made it possible for e-commerce companies to offer bundles of services not based on artificial regulatory categories, but on their customers' comprehensive financial needs.[35]

Resources for Invention, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY 609 (Richard Nelson ed., 1962). For a re-conceptualization of the debate, *see* Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, http://ssrn.com/abstract=962261 (last visited Apr. 18, 2010).

[32] VOGEL, *supra* note 29; I have amplified Vogel's point repeatedly in my writings. *See* David Lazer and Viktor Mayer-Schönberger, *Telecommunications Developments in the European Union: Governing Networks: Telecommunication Deregulation in Europe and the United States*, 27 BROOKLYN J. INT'L L. 819 (2001); Viktor Mayer-Schönberger & Mathias Strasser, *A Closer Look at Telecom Deregulation: The European Advantage*, 12 HARV. J.L. & TECH. 561 (1999).

[33] For a summary of America West Airlines successful business history *see* America West Airlines, http://en.wikipedia.org/wiki/America_West_Airlines#History (last visited Apr. 18, 2010).

[34] For a summary of Nextel's successful business history, *see* Milestone Events Making Sprint History, http://www.sprint.com/companyinfo/history/ (last visited Apr. 18, 2010).

[35] *See* Financial Services Modernization Act of 1999, Pub. L. No. 106-102, 113 Stat. 1388 (1999) (deregulation in the face of modern technology); Conrad S. Ciccotello, C. Terry Grant & Mark Dickie, *Will Consult for Food! Rethinking Barriers to Professional Entry in the Information Age*, 40 AM. BUS. L.J. 905 (2003); *see also* VOGEL, *supra* note 29, at 31–35.

In many European nations, new entrants, especially in the digital and mobile telephony sector, have overtaken the former incumbent phone companies.

While such leveling has become more frequent in recent years, it is not an invention of our times. For example, the legal invention of the modern patent system[36] already contained an important element of leveling by requiring patented inventions to be disclosed to the public.[37] To be afforded legal protection, even large firms had to disclose the inner workings of their new inventions for others to study and to learn from.[38]

B. LAW AS PROTECTOR

Markets, as Judge Easterbrook reminds us, require property rights to function as efficient allocation mechanisms for scarce resources.[39] The term *property rights* signifies that it is not enough to have actual physical control over a particular good if others are not also prohibited from using force to simply take one's belonging. Instead, what is needed is the acceptance by the people that property rights can only be transferred voluntarily from one person to another, and that a societal institution – the legal system – will use force to help those who have legitimate property rights regain physical possession if necessary.

The advent of patent laws as part of industrialization in the nineteenth century extended the idea of property from physical goods to intellectual ones – to the realm of ideas. Through patents, knowledge can be turned into quasi-property, affording the originator of an idea exclusive rights to it for a limited period of time.[40] The

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[36] *See e.g.*, the U.S.' first Patent Act of 1790, Ch. 7, 1 Stat. 109-112 (April 10, 1790).

[37] Ove Granstrand, *Innovation and Intellectual Property Rights*, in THE OXFORD HANDBOOK OF INNOVATION 280 (Jan Fagerberg, David C. Mowery & Richard R. Nelson eds., 2005); *see also* J. Ordover, *A Patent System for Both Diffusion and Exclusion*, 5 JOURNAL OF ECONOMIC PERSPECTIVES 43 (1991).

[38] In practice, however, the patent disclosure requirement has limited impact. *See* Suzanne Scotchmer, INNOVATION AND INCENTIVES 70 (2004).

[39] Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 212–13 (1996); *see also* Peter J. Boettke & Christopher J. Coyne, *Entrepreneurship and Development: Cause or Consequence?*, 6 ADVANCES IN AUSTRIAN ECON. 67 (2003) (suggesting that "well-defined property rights" are one of two most important institutions for encouraging entrepreneurship).

[40] JAFFE & LERNER, *supra* note 9, at 7–8.

societal reason for granting patents was utilitarian: lawmakers hoped that it would provide a powerful incentive for entrepreneurs to come up with great new products and production processes. In granting exclusive rights over such ideas, lawmakers wished to ensure that inventors would take their ideas and bring them to market, thereby furthering overall economic growth and development.[41] Because of this utilitarian intention, patent rights only protected applied knowledge that led directly to a novel product or production process. In contrast, basic scientific knowledge remained un-patentable, and thus available for everybody to use.[42] Copyright and related intellectual property rights have joined patent rights in granting the creator a temporary exclusive right.[43]

These intellectual property rights have become a major driver of entrepreneurial activity.[44] Stock market valuations of chip designers and software companies, for example, are premised upon their patent and copyright claims, much like pharmaceutical and biotech companies' values are based on their holdings of drug patents.[45] Supposedly low-tech consumer companies are built on brand, which in no small part rests on trademark law.[46] The ability to effectively protect one's intellectual creations through the legal system and not through one's sheer power in the market provides entrepreneurs an

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[41] *See* Granstrand, *supra* note 377, at 278–84 (discussing the role of IPRs in innovation systems); JAFFE & LERNER, *supra* note 9, at 52–55 (discussing how the patent system is "supposed to work").

[42] WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW, 305–08 (2003).

[43] *See* Granstrand, *supra* note 377, at 266–78 (discussing the historical developments in intellectual property rights). *See also* LANDES & POSNER, *supra* note 42, at 294–97 (discussing the relationship between patents and copyrights).

[44] *See* Joshua S. Gans & Scott Stern, *Incumbency and R&D Incentives: Licensing the Gale of Creative Destruction*, 4 J. ECON. & MGMT. STRAT. 9 (2000); Smith & Ueda, *supra* note 3, at 236; Masako Ueda, *Banks versus Venture Capital: Project Evaluation, Screening, and Expropriation*, 59 J. FIN. 601 (2004).

[45] *See generally* Bronwyn H. Hall, Adam Jaffe & Manuel Trajtenberg, *Market Value and Patent Citations: A First Look* (Nat'l Bureau of Econ. Research, Working Paper No. 7741, 2000), *available at* http://www.nber.org/ papers/w7741 (last visited Apr. 18, 2010); *see also* Ueda, *supra* note 44.

[46] Trademark law thus has taken on a quasi-property role, despite the fact that it originally has a consumer protection bend.

important incentive to innovate, as Kenneth Arrow argued many years ago.[47]

Some have suggested that intellectual property rights are primarily used by large corporations to keep others, especially new entrants, out of lucrative markets.[48] To be sure, there is evidence that the current patent system in the United States has made possible the filing of so-called "defensive patents" that insulate established players in the market from competitive forces.[49] These and related developments in patent law may be in need of correction.[50] Yet, overall the system seems to have tilted in favor of startups and entrepreneurs rather than against them. Kevin Rivette and David Kline have shown that while in 1972 entrepreneurs only accounted for five percent of all patent applications, by 1992 their share had grown to 23 percent, more than quadrupling their portion in the overall pool of new patent applications.[51] Numerous cases attest that these entrepreneurial Davids have successfully employed the law to win hundreds of millions of dollars in patent suits against powerful Goliaths like Microsoft, Apple, and General Electric.[52] While these facts do not

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[47] *See* Arrow, *supra* note 31; LANDES & POSNER, *supra* note 42.

[48] *See* JAFFE & LERNER, *supra note* 9.

[49] For example, a patent attorney for Hewlett Packard was quoted as saying "We get patents not to protect our own products, but because it gives us power to exclude in areas where others might want to participate." Pui-Wing Tam, *More Patents Please! Tech Companies Urge Staffers to Submit Innovative Ideas; Cash Awards, Plaques at H-P*, WALL ST. J., Oct. 3, 2002, at B1; LANDES & POSNER, *supra* note 42, at 320-22 (reviewing recent literature on "defensive patents").

[50] *See generally* JAFFE & LERNER, *supra* note 9; Dan L. Burk and Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575 (2003); Dan L. Burk and Mark A. Lemley, *Is Patent Law Technology Specific?*, 17 BERKELEY L.J. 1155 (2002); Julie E. Cohen and Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REVIEW 1 (2001); Mark D. Janis, *Patent System Reform: Patent Abolitionism*, 17 BERKELEY TECH. L.J. 899 (2002); Mark A. Lemley, *What to Do About Bad Patents?*, 28 REGULATION 4 (2005); Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U.L. REV 1495 (2001); Beth S. Noveck, *"Peer to Patent": Collective Intelligence, Open Review, and Patent Reform*, 20 HARV. J.L. & TECH. 123 (2006); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035 (2003).

[51] KEVIN G. RIVETTE & DAVID KLINE, REMBRANDTS IN THE ATTIC 18 (2000).

[52] *See* Typeright Keyboard Corp. v. Microsoft Corp., 374 F.3d 1151 (Fed. Cir. 2004) (reversing and remanding summary judgment against ergonomic keyboard patent holder); *see also* Apple Computer, Inc. v. Articulate Sys., Inc., 234 F.3d 14 (Fed. Cir. 2000) (reversing invalidation of the patent of a graphical interface company); Reiffin v. Microsoft

prove that intellectual property laws have only benefited entrepreneurs[53], they show the potential of these laws to assist entrepreneurs in their activities.

Much has been written lately about the weaknesses of our current intellectual property rights regime.[54] In particular, some claim that overbroad patents have stifled some entrepreneurial activity.[55] These arguments may have some merit. I am not defending the current intellectual property regime. My argument is more limited: given the desire of entrepreneurs to achieve economic success, dangling the carrot of exclusive economic exploitation of knowledge has acted as a powerful incentive for entrepreneurs to innovate.

Corp., 214 F.3d 1342 (Fed. Cir. 2000) (reversing and remanding summary judgment against spell check software programmer); Fonar Corp. v. Gen. Elec. Co., 107 F.3d 1543 (Fed. Cir. 1997) (reversed trial court's finding of non-infringement of patent on magnetic resource imaging technique); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240 (3rd Cir. 1984) (reversing order denying hardware entrepreneur preliminary injunction).

53 Recently, patent trolls, patent holders who enforce their patents without actually intending to bring their invention to market, have become scrutinized. Whether patent trolls are problematic, and to what extent such behavior occurs is contested. *Cf.* JEFFREY H. MATSUURA, JEFFERSON VS. THE PATENT TROLLS: A POPULIST VISION OF INTELLECTUAL PROPERTY RIGHTS (2008) (arguing patent trolls violate the Jeffersonian ideal underlying patent protection) with James F. McDonough, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189 (2006) (suggesting that even pure patent enforcement performs a positive function).

54 *See, e.g.*, the works cited in note 50 *supra*. *See* also YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM (2006); WILLIAM W. FISHER, PROMISES TO KEEP: TECHNOLOGY, LAW, AND THE FUTURE OF ENTERTAINMENT (2004); LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY (2004); LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF COMMONS IN A CONNECTED WORLD (2001); JESSICA LITMAN, DIGITAL COPYRIGHT: PROTECTING INTELLECTUAL PROPERTY ON THE INTERNET (2000); Neil W. Netanel, *The Law and Economics of Intellectual Property Rights: Market Hierarchy and Copyright in Our System of Free Expression*, 53 VAND. L. REV. 1879 (2000).

55 *See* Paul Klemperer, *How Broad Should the Scope of Patent Protection Be?*, 21 RAND J. ECON. 113 (1990); Josh Lerner, *The Importance of Patent Scope: An Economic Analysis*, 25 RAND. J. ECON. 2 (1994); David Silverstein, *Patents, Science and Innovation: Historical Linkages and Implications for Global Technological Competitiveness*, 17 RUTGERS COMPUTER & TECH. L.J. 261, 264–66 (1991).

C. LAW AS ENFORCER

Law fulfills a third, potentially useful, function for entrepreneurs: the enforcement of contractual obligations. When market participants transact with each other, they need to trust that the counterparty will fulfill its contractual duties. Such trust can be established many different ways. One way is through repeated positive personal experiences and interactions – for example, a company's reputation for fair dealing is built over time.[56] Parties may also decide to find a "trust substitute," such as another person who acts as a guarantor. In our society, the legal system is the principal societal "trust substitute."[57] It permits buyers and sellers to contract without having to first establish a trust necessary for a mutual willingness to execute. Instead, parties rely on the threat of legal action to coerce the other side to perform, or at least pay damages caused by its nonperformance.[58] Law enables us to transact with others that we do not know, that we have not met, or that live far away.

All market participants require such trust, but some are more exposed to the risk that their business partners will not perform as promised. Large and established corporations, for example, can limit their risk by spreading it across many different transactional partners. If one fails to perform, the loss is contained. Entrepreneurs with a small number of clients and suppliers are much more dependent on their partners. Non-performance by a partner may cause serious financial losses to a fledgling startup. In addition, unlike entrepreneurs, established companies already know whom to trust, based on their past experiences. Large corporations also have economic power at their disposal to persuade businesses partners into compliance. Entrepreneurs, on the other hand, do not yet have such transactional experience and economic power and thus have to rely more on the legal system to enforce contracts at relatively reasonable costs.

Recently, alternative mechanisms, such as credit card companies or alternative dispute resolution (ADR), have become more common

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[56] Avner Ben-Ner & Louis Putterman, *Trust Relationships: Trusting and Trustworthiness*, 81 B.U. L. REV. 523, 527 (2001).

[57] FRANCIS FUKUYAMA, TRUST: THE SOCIAL VIRTUES AND THE CREATION OF PROSPERITY 27 (1995). *See also* Frank B. Cross, *Law and Trust*, 93 GEO. L.J. 1457 (2005) (discussing generally the interaction of trust and the law).

[58] FUKUYAMA, *supra* note 57, at 311.

and act as a trust surrogate at lower cost than the law. As a result, some have suggested that the legal system may lose some of its role as enforcer.[59] However, while such mechanisms have made impressive gains in some sectors, overall, the law still maintains its position. This is especially so because the legal system does not only enforce individual contracts through a formal procedure. It also acts as a promoter of good behavior by sending a powerful signal to all market participants that violating a contractual promise risks costly societal enforcement.[60] This societal signaling reduces noncompliance, thus lowering transactional risk for compliant market participants. Furthermore, the law as a trust surrogate enforces the property rights it protects and thus validates and encourages the use of markets as a legitimate institution and commercial transactions as a legitimate mechanism to allocate scarce resources. This in turn, as economists have maintained, ensures overall efficiency in the allocation process.[61]

In sum, the legal system can help entrepreneurs by enforcing the contracts they have with their business partners. The law reduces the risk of noncompliance, thus offsetting some of the disadvantages entrepreneurs are exposed to because their size prevents them from spreading the risk among many contractual partners. Finally, compared with alternative risk enforcement mechanisms, like economic power, the law is readily available to entrepreneurs at relatively low cost.[62]

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[59] *See* Samuel Issacharoff & Erin F. Delaney, *Homo Economicus, Homo Myopicus and the Law and Economics of Consumer Choice: Credit Card Accountability*, 73 U. CHI. L. REV. 157 (2006); Johanna Harrington, *To Litigate or Arbitrate? No Matter -The Credit Card Industry Is Deciding For You*, 2001 J. DISP. RESOL. 101 (2001).

[60] *See generally* ERIC A. POSNER, LAW AND SOCIAL NORMS (2000).

[61] *See* Ronald Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960) (going further by suggesting that the *initial* assignment of property rights does not diminish the overall efficiency of the system as long as transactional costs are minimal).

[62] My argument here rests on the solid foundations of Douglass North and the school of New Institutional Economics; *see, e.g.*, EIRIK FURUBOTN & RUDOLF RICHTER, INSTITUTIONS AND ECONOMIC THEORY: THE CONTRIBUTION OF THE NEW INSTITUTIONAL ECONOMICS (2d ed. 2005); my argument follows the one made by my former colleague Florencio Lopez-de-Silanes and his co-authors Rafael La Porta, Andrei Shleifer, and Robert Vishny ("LLSV") on the importance of legal institutions for economic development. *See* Rafael La Porta et al., *Legal Determinants of External Finance*, 52 J. FIN. 1131 (1997); Rafael La Porta et al., *Law and Finance*, 106 J. POL. ECON. 1113 (1998); Rafael La Porta et al, *Corporate Ownership Around the World*, 54 J. FIN 471 (1999).

III. A FRAMEWORK OF ENTREPRENEURSHIP AND LAW'S ROLE IN IT[63]

In Part II of this article, I laid out three arguments of how the legal system can facilitate entrepreneurship. Yet, these arguments do not tell us much about exactly what kind of legal rules influence entrepreneurship. Almost any legal rule may at one level or another impact entrepreneurs and thus influence entrepreneurial activity. In the following I suggest a framework to conceptualize how law shapes entrepreneurial activity more directly by analyzing the role of risk and the role of law.

A. THE ROLE OF RISK

All humans make decisions based on a subjective, sometimes perfunctory, analysis of the risks and rewards their decisions entail. Successful entrepreneurs are no different. Yet they are somehow better than the average human. Their decisions result in higher gains. Understanding why is important as it may uncover how society can better facilitate entrepreneurship if it so desires, including through the legal system. Three reasons are conceivable to explain entrepreneurs' successes.

First, entrepreneurs may be less risk averse than others, reaping the benefits of their more risk-taking behavior.[64] Their success would rest on their increased willingness to take risks. Second, one could argue that the difference lies not in the willingness to take risks but in the information available for decision-making. While entrepreneurs may not have complete information, they may have more or better information than others, with the resulting informational advantage explaining their successes. Third, entrepreneurial success may rest on an evaluation advantage. Entrepreneurs may take the same risks and have access to the same information as others, but win because they are better able to evaluate risks and rewards. Let us take a look at each of those explanations in turn.

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[63] This section draws on Viktor Mayer-Schönberger & Verena Kugi, *Innovating Policy*, Kokkalis Program Research Paper (2006) (unpublished, on file with Harv. Kennedy School of Gov't.).

[64] F. H. Knight, RISK, UNCERTAINTY, AND PROFIT (1965).

1. RISK-TAKING ENTREPRENEURS

Politicians often call upon citizens to become more risk taking, implying that this would increase entrepreneurial activity.[65] Superficially that may make sense. However, the situation is more complex. Not only are cultural values, such as risk taking, deeply rooted in both humans and society and therefore hard to change.[66] The relationship (if there is one) between the willingness to take risks and entrepreneurial success is also not linear:[67] An increase in the willingness of people to take risks does not automatically translate into more *successful* entrepreneurs. Increased risk-taking may not necessarily lead to more entrepreneurial activity, and more entrepreneurial activity may not lead to more entrepreneurial success. In fact, increased risk-taking may cause an oversupply of risk-takers, a

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[65] For example, in the UK, politician Patricia Hewitt went so far as to introduce an "Enterprise Bill." *Hewitt Introduces Bill to Boost Enterprise and Prosperity for All*, HERMES DATABASE, Mar. 26, 2002. Similar reforms are being pursued by Senator John Kerry in his role as Chair of the Committee on Small Business and Entrepreneurship. *Senator Kerry's Small Business Priorities*, PR NEWSWIRE, Jan. 5, 2007.

[66] *See* Zoltan Acs & Laszlo Szerb, *Entrepreneurship, Economic Growth and Public Policy*, 28 SMALL BUS. ECON. 109 (2007) (suggesting that culture constrains what public policies can do to promote entrepreneurial activity); for a study on how to inject an entrepreneurial spirit in primary and secondary education, *see* EDUCATIONAL ENTREPRENEURSHIP: REALITIES, CHALLENGES, POSSIBILITIES (Frederick Hess ed., 2006).

[67] The (very tenuous) line of argument is that risk takers are of a particular Myers-Briggs personality type. Greg Filbeck, Patricia Hatfield & Philip Horvath, *Risk Aversion and Personality Type*, 6 J. BEHAV. FIN. 170 (2005). Similarly, entrepreneurs tend to be of the same Myers-Briggs personality type. Vesa Toutamaa, *Awareness of Entrepreneurial Personalities: A Prerequisite for Entrepreneurial Education*, (National Council for Graduate Entrepreneurship, Working Paper No. 19, 2007). *But cf.* Marco Caliendo, Frank M. Fossen & Alexander S. Kritikos, *Risk Attitudes of Nascent Entrepreneurs: New Evidence from an Experimentally-Validated Survey* (IZA Discussion Paper No. 2168, June 2006) (finding that contrary to conventional wisdom that more risk-averse individuals are less likely to become entrepreneurs, this is not true for entrepreneurs coming out of inactivity or unemployment, only for entrepreneurs coming out of regular employment). *See also* A. Rauch & M. Freese, *Psychological Approaches to Entrepreneurial Success: A General Model and an Overview of Findings*, *in* INTERNATIONAL REVIEW OF INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY 101 (C. Cooper & I. Robertson eds., 2000) (suggesting that risk-taking is only one of many factors shaping the decision to become an entrepreneur); B. Schiller & P. Crewson, *Entrepreneurial Origins: A Longitudinal Inquiry*, 35 ECONOMIC INQUIRY 523 (1997) (empirically finding that risk-taking is difficult to separate from other factors).

problematic entrepreneurial "bubble".[68] Moving from analysis to prescription, lawmakers understandably desire a healthy supply of new entrepreneurs; yet, it may be equally important to have institutional filters to identify and encourage those entrepreneurs that are more likely to be successful. In sum, the role of risk-taking behavior is a potential explanation for entrepreneurial success, but the exact linkage between the two remains understudied, and thus difficult for lawmakers to operationalize.

2. INFORMATION-RICH ENTREPRENEURS

Explaining successful entrepreneurship through information advantages puts the focus on the informational dimension of risk assessment and suggests that successful entrepreneurs maintain an information asymmetry in their favor. Classical economic theory disdains information asymmetries[69] and, when necessary, suggests regulating the behavior of market actors to ensure informational balance. Not surprisingly, the legal system is replete with examples of such information rebalancing – from SEC filing requirements to nutritional information of foodstuff.[70] All these cases share the same normative aim – to achieve information symmetries. To the extent that entrepreneurial success rests on information asymmetries, classical economic theory seems to suggest eliminating the foundation entrepreneurial activity is built on. Empirical work, however, has shown that individuals who are knowledgeable in a particular sector or industry perceive risks to be lower, and thus are able to identify

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[68] *See generally* DAVID SKEEL, ICARUS IN THE BOARDROOM: THE FUNDAMENTAL FLAWS IN CORPORATE AMERICA AND WHERE THEY CAME FROM (2005).

[69] A fundamental assumption in the microeconomic theory on markets is "perfect information." The literature is replete with complexities that arise due to asymmetric information, most popularly the problems of "moral hazard" and "lemons." *See* N. GREGORY MANKIW, PRINCIPLES OF ECONOMICS 484-90 (4th ed. 2007).

[70] Publicly traded corporations are required to provide comprehensive information about their business to shareholders and potential investors through filing requirements with the SEC. Companies offering investment opportunities are required to make public detailed information about potential risks. Food producers have to provide nutritional information to consumers. Pharmaceutical companies have to detail uses, dosage, risks, and side effects of their drugs to potential users. The auto industry has to let consumers know the fuel economy of the cars they produce. Polluters have to provide the Environmental Protection Agency (EPA) with detailed data about stockpiles of dangerous substances – data that the EPA then makes public. In a number of states, landlords have to disclose whether a rented space is contaminated with lead paint.

entrepreneurial opportunities that others do not see. They succeed because of the information advantage they have.[71]

While this may run contrary to traditional economic theory, a vocal minority of economists, the so-called "Austrian School," has suggested that information asymmetries are omnipresent in market transactions.[72] For these economists, the information advantage argument is perfectly congruent with their larger view of the functioning of markets.[73] The task of the legal system they argue is precisely not to rebalance information asymmetries. This would only cause a lamentable reduction of entrepreneurial potential without outweighing benefits for market competition.

3. ENTREPRENEURS AS SUPERIOR EVALUATORS

The third argument focuses on the process of how successful entrepreneurs weigh risks and rewards. Entrepreneurs are, the reasoning goes, not necessarily more risk-taking, nor do they have access to better information. Instead, they are better able to evaluate risks and rewards. The human ability to evaluate risk has recently received sustained academic attention. Behavioral economists have taken a hard look at human behavior, transforming the simplistic idea of an always-rational *homo economicus*.[74] Psychologists have studied information evaluation and decision-making of individuals, including in high-risk/high-reward professions.[75] In his popular work on the

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[71] Sharon Gifford, *Risk and Uncertainty, in* HANDBOOK OF ENTREPRENEURSHIP RESEARCH 37 (Z. Acs & David Audretsch eds., 2003).

[72] The most famous adherents of the "Austrian School" include Carl Menger, Eugen von Böhm-Bawerk, Friedrich von Wieser, Ludwig von Mises, Friedrich Hayek, Joseph Schumpeter, Gottfried von Haberler, Murray Rothbard, Israel Kirzner, George Reisman, Henry Hazlitt, and Hans-Hermann Hoppe.

[73] *See generally* Israel M. Kirzner, *Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach*, 35 J. ECON. LIT. 60 (1997) (reviewing Austrian School economics literature).

[74] For the beginning of the field, *see* Daniel Ellsberg, *Risk, Ambiguity, and the Savage Axioms*, 75 Q. J. OF ECON. 643 (1961). For an overview of behavioral economics from the perspective of law, *see* Christine Jolls, *Behavioral Law and Economics* (Nat'l Bureau of Econ. Research Working Paper No. 12879, 2007), *available at* http://www.nber.org/papers/w12879 (last visited Apr. 18, 2010).

[75] *See* Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979); THOMAS OBERLECHNER, THE PSYCHOLOGY OF THE FOREIGN EXCHANGE MARKET (2004).

history of risk, Peter Bernstein has shown how recent our probabilities-based understanding of evaluating risks is.[76] Taken together, this research suggests that evaluating risks is difficult for humans, and that some humans may be better at it than others. This could point towards an explanation of entrepreneurial success.

Yet, even if some humans are better than others, it is unclear whether entrepreneurs are among those that are better at assessing risks. As these differences are rooted in us being human, and embedded in our minds, facilitating entrepreneurial activity by changing the way we evaluate risks may be difficult. We may not be able to alter human risk assessment, at least not through the relatively crude means of laws and regulations.

Simply increasing the amount of risk humans are willing to accept or changing the way humans process information in their minds may hold little near-term promise. As a result, policy-makers intending to assist entrepreneurs may opt for a strategy that is less dependent on human psyche to change, and more dependent on the information on which entrepreneurs base their assessments.

Evaluating risks may be a visceral process for some successful entrepreneurs, while others may engage in a very structured, detailed analysis. Both groups, however, tend to break up risks into smaller components that they assess in turn.[77] Some of these components the entrepreneurs think they can control, others are taken out of their hands because they are shaped by societal, political and economic contexts. This points to an important differentiation. For "internal" components, entrepreneurs need to also evaluate their ability to shape these in accordance with their plans and preferences, while they cannot do the same for "external" components. For the latter the best they can hope for is to be able to accurately assess them.

This is a (small) blessing and a (huge) curse. It is a blessing because it does not require entrepreneurs to factor in change that they themselves cannot affect, and thus may make evaluating these components easier. It is a curse because entrepreneurs have little or no control over these elements of their overall assessment of risks. At best they can accurately assess these components. Not surprisingly, therefore, entrepreneurs want to understand the likely trajectory of these "external" components to evaluate them with sufficient

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[76] PETER L. BERNSTEIN, AGAINST THE GODS: THE REMARKABLE STORY OF RISK (1996).

[77] *See* European Commission, Eurobarometer Entrepreneurship 42–44 (June 2004) (differentiating between internal and external factors weighed by potential entrepreneurs).

precision. What they crave is informational accuracy. Incidentally, this is where the law can help.

B. THE ROLE OF LAW

For entrepreneurs, "external" risks are what they can assess, but not control. Each of these risks consists of a cost or benefit and the probability that it will be incurred. For example, applying for a subsidy is a potential reward, but receiving it may not be certain – an entrepreneur has to factor this uncertainty into his or her overall assessment.

This makes it possible for the law to play a dual role in facilitating entrepreneurship. First, policies translated into laws can lower the costs for entrepreneurs. Labor laws can be structured so that hiring and firing employees is easy and relatively cheap, permitting entrepreneurial enterprises that grow unevenly to adjust their human resources swiftly and at low transactional cost.[78] Corporate and tax laws can be designed to make it easier for startups to obtain outside funding, through venture capitalists for example, and to provide their employees with stock options as a means of attracting and retaining important talent.[79] Intellectual property laws can be made to lower the barriers for being granted a patent, from lowering filing fees to reducing the paperwork required to file a patent application.[80] All these measures are achievable through adjustments of the legal system; they reduce the cost for an entrepreneur and thus, assuming fixed probabilities incurring these costs as well as fixed benefits, tilt the risk/reward equation in the entrepreneur's favor.

It is important to realize that such costs do not vanish. Reducing them for entrepreneurs often results in these costs being borne by

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[78] *Supra* note 6.

[79] For a theoretical model and empirical analysis of the impact of tax law on entrepreneurial activity, *see* Julie Berry Cullen & Roger H. Gordon, *Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S.* (Nat'l Bureau of Econ. Research, Working Paper No. W9015, 2002), *available at* http://ssrn.com/abstract=316794 (last visited Apr. 18, 2010).

[80] *See* Lee A. Hollaar, *A New Look at Patent Reform*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 743, 754 (2005) (suggesting lowered filing fees); Gerald J. Mossinghoff & Vivian S. Kuo, *World Patent System Circa 20XX*, A.D., 38 IDEA 529, 562 (1998) (arguing for a reduction in filing fees). In 2004, Congress reduced filing fees to stimulate innovation, especially for smaller companies. *See* Consolidated Appropriations Act of 2004, Pub. L. No. 108-356, 118 Stat. 3 (2004).

other groups in our society. For example, changing labor laws to eliminate severance payments or giving notice when terminating employment contracts reduces costs for entrepreneurs and thus facilitates entrepreneurship, but employees (or in states with generous unemployment benefits, the taxpayers) will bear the consequences through increased cost (if e.g. they will not receive severance payments) or heightened risk (in the form of e.g. higher uncertainty of whether they are made redundant at short notice).[81] Similarly, modifying bankruptcy statutes to lower the stigma of failure may help unsuccessful entrepreneurs to try again, but investors and creditors shoulder the additional risk (and thus ultimately, the costs) of such redistribution.[82] Lowering risk for entrepreneurs in this way may be in society's interest, especially when entrepreneurial activity is perceived to be too low, but it is important for lawmakers to realize that such actions are not costless.

Law lowers risk and thus external costs for entrepreneurs. While not often described in these terms, this role of the legal system is relatively well understood and legislatures have already deliberately or intuitively employed the law in this way. The legal system may, however, play a second important role, and this one is ill-understood. As I have suggested, entrepreneurs weigh risks and differentiate between those risks that they can influence (which they will attempt to do) and those external ones that they cannot shape.

Like any risk, external risks consist of two elements, the cost (or reward) and the probability that it will be incurred. For example, if an entrepreneur decides to bring a new product to market that may infringe upon another company's intellectual property rights, the cost of infringement is relatively straightforward to calculate. Depending on the legal system, the entrepreneur may be forced to pay damages (actual, punitive or statutory), fines, and court costs should a court conclude in the other party's favor. Yet, it is uncertain how the court will decide. Each possible outcome is associated with a certain probability. Multiplying the probability of a possible outcome by its potential cost yields what economists call the expected value (or utility

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[81] This is the basis of the Danish flexicurity system. *See* Søren Kaj Andersen & Mikkel Mailand, *The Danish Flexicurity Model* (Working Paper 2005), available online at http://www.sociology.ku.dk/faos/flexicurityska05.pdf (last visited Apr. 25, 2010) (describing the combination of a flexible labor market with strong unemployment benefits).

[82] For an empirical analysis of the role of bankruptcy law on entrepreneurial activity, *see* John Armour & Douglas Cumming, *The Legislative Road to Silicon Valley*, 58 OXFORD ECON. PAPERS 596 (2006).

if one takes into account the subjective dimension of decision-making).[83]

Law bears on this probability. It can make outcomes more or less likely to happen. If, for example, intellectual property required relatively little evidence for an infringement case to succeed, the probability that an infringement will lead to actual cost for the infringer will increase. This rather direct linkage between probability of external events and entrepreneurial risk may suggest that, to facilitate entrepreneurship, the law ought to aim at lowering the probability for external costs entrepreneurs typically face (or increasing the probability of receiving a subsidy).[84]

Yet, this strategy suffers from two weaknesses. First, it necessitates that lawmakers can identify the relevant factors without causing inefficiencies through under- or over-inclusiveness. For example, making it harder for intellectual property rights holders to sue rights infringers may encourage undesired free-riding. Second, it rests on the capacity and willingness of legislators to treat entrepreneurs more favorably than others. In some circumstances this may trigger equal protection concerns. More importantly, such a stance of preferential treatment may be politically difficult to defend.[85]

There is another and more promising way through which the legal system can aid entrepreneurs. It rests on the understanding that entrepreneurs try to shape and assess internal and assess external factors when estimating risks. Given the many uncertainties associated with the multitude of factors, entrepreneurs may – given unchanged expected value – prefer to know exactly whether they will incur particular costs. For example, rather than having a fifty percent chance of receiving a subsidy, entrepreneurs may prefer a hundred

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[83] For the narrative of expected value theory, *see* Mark J. Machina, *Choice Under Uncertainty: Problems Solved and Unsolved*, 1 J. ECON. PERSP. 121 (1987). It is important to note here that not all expected values are equally enticing to all actors – richer actors may find less subjective value in gaining an extra dollar than less affluent ones; this has led to an adjustment from expected value to expected utility. For the sake of simplicity I do not introduce the difference in this paper; suffice to say that subjective *utility* rather than objective *value* is what influences entrepreneurial decision-making. *See generally* JOHN VON NEUMANN & OSKAR MORGENSTERN, THEORY OF GAMES AND ECONOMIC BEHAVIOR (1953).

[84] This is similar to what James Gibson has recently described in the context of IP laws. *See* James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L. J. 882 (2007).

[85] To be sure, as the EPC literature explains in much detail, such a superficial view is, well, superficial.

percent chance – and thus absolute certainty – to receiving half of the subsidy. The expected value in both instances is the same, but the latter offers entrepreneurs certainty.

Such a view would suggest that the role of the legal system in facilitating entrepreneurial activity is to reduce the uncertainties[86] that entrepreneurs perceive.[87] This can be done many different ways. Clarifying the tax code reduces the uncertainty for businesses in paying taxes. Uncertainty may also be lowered through changes in civil procedure and the court system to ensure that more trials lead to expected outcomes. Similarly, setting clear rules for granting intellectual property rights lowers uncertainty. These measures link the legal system in its role as facilitating entrepreneurial activity to its role in delivering transparency and certainty.[88] In fact, one could argue that one of the reasons for the entrepreneurial success in the United States is the relative transparency and predictability of its legal system – often summarized under the rubric of a functioning "rule of law" compared to other societies. [89] Importantly, such measures would not increase the overall societal cost; the total expected value would stay constant. In sum, strengthening the rule of law –

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[86] I use the term "uncertainty" here with caution and in the general sense. In the risk literature, the term at times is used to denote the unknown portion of probabilities. *See* Knight, *supra* note 64.

[87] It is important to note in this context that what counts are perceptions, not objective values, as humans make decisions based on their perceptions, not based on access to an objective truth.

[88] *See* Rafael La Porta et al., *supra* note 62; *see also* Katharina Pistor, *Law as a Determinant for Equity Market Development: The Experience of Transition Economies*, *in* PETER MURRELL, ASSESSING THE VALUE OF LAW IN TRANSITION ECONOMIES 249 (2001); Josh Lerner & Antoinette Schoar, *Does Legal Enforcement Affect Financial Transactions?*, 120 Q.J. ECON. 223 (2005) (finding that investment performance in private equity investment was better in common law countries, arguably because of a superior legal framework for such investments).

[89] This is certainly the view of the legal institutions literature. *See* Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes & Andrew Shleifer, *Do Institutions Cause Growth?*, 9 J. ECON. GROWTH 271 (2004); La Porta et al., *Law and Finance*, *supra* note 62. For an extensive treatment of the subject, *see* KENNETH W. DAM, THE LAW – GROWTH NEXUS – THE RULE OF LAW AND ECONOMIC DEVELOPMENT (2006). For the developing world, *see* Dani Rodrik, Arvind Subramanian & Francesco Trebbi, *Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development*, 9 J. ECON. GROWTH 65 (2004); Boettke & Coyne, *supra* note 39; Lerner & Schoar, *supra* note 88. For a research agenda on the role of courts and the rule of law for entrepreneurship, *see* Smith & Ueda, *supra* note 4, at 241–46.

clarifying legal rules to be more predictable and reducing uncertainty of legal processes – fosters and sustains entrepreneurial activity.

In one sense, however, reducing uncertainty to stimulate entrepreneurial activity seems counter-intuitive. Aren't entrepreneurs risk-takers that thrive on uncertainty rather than shying away from it? Of course; but if humans are weak at evaluating risks and dealing with uncertainty, increasing certainty (and thus pushing the probability of an event as far as possible towards either 0 or 1) may have a positive effect. It may prompt some entrepreneurs to act and other individuals to join the ranks of entrepreneurs, thus increasing the entrepreneurial pool. Because expected values remain constant, there would be no direct societal cost associated with such a reduction of uncertainty.[90] Lowering uncertainty, while leaving expected values unchanged, then, is the second role the legal system can play in facilitating entrepreneurial activity.

The understanding that lowering uncertainty may lead directly to more entrepreneurial activity is well aligned with what economists have termed "expected utility theory." It suggests that risk-averse human beings are willing to pay for certainty. For example, individuals may prefer the certainty of receiving a third of a subsidy to a fifty percent chance of receiving all of it. The difference between a third and a half is the price paid for certainty. Assuming this is true, lawmakers could take the certainty strategy one step further and lower payouts to entrepreneurs in return for increased predictability.[91]

Unfortunately, expected utility theory has shortcomings. In particular, experimental economists have found that how much risk an individual is willing to accept is not constant. Experiments have shown that humans tend to change their assessment of risk as potential payoffs increase.[92] The more money at stake, the less risk-taking people tend to be. This suggests that lawmakers may want to prioritize increasing predictability to high payoff cases, i.e. situations where high benefits (or costs) are at stake for entrepreneurs.

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[90] To be sure, reducing uncertainty is not costless. Better laws may require better preparation; better legal processes may require better training of judges, more personnel, etc.

[91] Whether and how much can be saved depends on the risk threshold of the group in question, and is likely a complex calculation.

[92] *See* Hans Binswanger, *Attitudes Towards Risk: Theoretical Implications of an Experiment in Rural India*, 91 ECON. J. 364 (1981); Steven Kachelmeier & Mohamed Shehata, *Examining Risk Preferences Under High Monetary Incentives: Experimental Evidence from the People's Republic of China*, 82 AM. ECON. REV. 5 (1982); Charles Holt & Susan Laury, *Risk Aversion and Incentive Effects*, 92 AM. ECON. REV. 5 (2002).

Behavioral economics has added yet another important wrinkle to the story, showing that an individual's decision about what risks to accept for what rewards depends substantially on whether the individual hopes to gain or fears to lose. Humans are more risk-averse when they consider potential gains, and more risk-taking when they evaluate potential losses or cost.[93] This would suggest that lawmakers should focus on making legal rules more certain for financial benefits offered to entrepreneurs, like subsidies, rather than costs, like taxes, as entrepreneurs value certainty more on the upside.

Yet, experiments have revealed humans tend to understand potential gains or losses by how they are being presented ("framed"). Kahneman and Tversky have shown that when the same prospect is framed in terms of a potential gain, humans prefer certainty, while if it is termed as a potential loss, humans are more accepting of chance.[94] This has consequences for how the law ought to be used to facilitate entrepreneurial activity. On the most superficial level, it may suggest that wherever uncertainty can be decreased through reform of the legal system, it ought to be described in terms of gains rather than losses. A bit more sophisticated approach may suggest that given the same level of predictability, lawmakers should offer a potential gain rather than threaten a potential loss.

To summarize, the theory of risk offers a framework for understanding the role of law in encouraging (or discouraging) entrepreneurial activity. Through changes in the legal system, direct costs for entrepreneurs can be lowered. Law can also influence the probability of incurring a cost even when holding expected values (and thus costs for taxpayers) constant, thus prompting more people to engage in entrepreneurial activity. Behavioral economics has shown that lowering uncertainty does not offer the same gains across the board. In particular, the framing of a prospect – whether as a potential gain or loss – influences how humans evaluate the associated risk. Lawmakers can use the lens of risk to understand the role of law in facilitating entrepreneurial activity and design more effective legislation. The strength of the approach lies in it being both comprehensive – covering all aspects of entrepreneurial activity – and

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[93] Bruno Frey, *Entscheidungsanomalien*, 41 PYSCHOLOGISCHE RUNDSCHAU 67–83 (1990); THOMAS OBERLECHNER, THE PSYCHOLOGY OF FOREIGN EXCHANGE MARKETS 71–88 (2004).

[94] *See* Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision under Risk*, 47 ECONOMETRICA 263 (1979); Daniel Kahneman & Amos Tversky, *Choices, Values and Frames*, 39 AM. PSYCHOLOGIST 341 (1984); OBERLECHNER, *supra* note 93, at 71–88 (discussing high risk decision-making in foreign exchange).

operational. It thus is more useful than the more particularistic views of the role of law that were mapped out in Part II. Unfortunately, the conceptual lens is not without its own shortcomings.

IV. OVERCOMING CONCEPTUAL WEAKNESSES THROUGH RADICAL INNOVATION

The traditional model I have presented in Part III provides a rather stylized and sequential understanding of how innovation works. Technology is ascribed to be the disruptive agent of change. Entrepreneurs identify and refine technologies in order to seize entrepreneurial opportunities. This is the moment of "entrepreneurial disruption." It is achieved by a special individual, the entrepreneur, and driven by technological change. In this model, entrepreneurs change the world through technology. They are the driving force and the lead actors in entrepreneurship. Law plays only a minor, supporting role.

This view sees technology as the mechanism of change in the hands of a special group of human beings. It is a variant of technological determinism, the view that the seeds of change are already embedded in technology. Entrepreneurs take these seeds and grow them. Such a conceptualization of the interface between technology and society has been criticized as too linear.[95] It fails to take into account the many other elements of society in shaping technology. The reality is much more a process of repeated trial-and-error, in which many actors, institutions, and processes shape the trajectory of the entrepreneurial product.[96]

These new theories, often termed "constructivist," posit a more complex, heterogeneous interplay of the various agents and mechanisms involved in innovation and lay out their argument using rich, detailed case studies. For example, Thomas Hughes has argued

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[95] *See* Trevor J. Pinch & Wiebe E. Bijker, *The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other*, *in* THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS: NEW DIRECTIONS IN THE SOCIOLOGY AND HISTORY OF TECHNOLOGY 22 (Wiebe E. Bijker, Thomas P. Hughes & Trevor Pinch eds., 1989).

[96] The general role of users in innovation has recently gained traction in mainstream legal academic discourse. *See* Katherine J. Strandburg, *Users as Innovators: Implications for Patent Doctrine*, Mar. 2007, *available at* http://ssrn.com/abstract=969399 (last visited Apr. 18, 2010). For path-breaking work on the subject, *see* ERIC VON HIPPEL, THE SOURCES OF INNOVATION (1988) (arguing that users, manufacturers, and suppliers play important roles in the innovation process).

that a technical innovation takes place within a technological system and may gain a "technological momentum" that pushes the innovation in a certain direction irrespective of the will of the innovative entrepreneur who initially conceived of it.[97] Others have advanced what has been termed the "actor-network approach,"[98] suggesting that the interplay resembles "heterogeneous networks of human and nonhuman actors."[99] Finally, Wiebe Bijker[100] and Trevor Pinch have advanced a theory of the "social construction of technology" (SCOT),[101] in which the innovative process is described "as an alternation of variation and selection"[102] that is "multi-directional," rather than linear.[103] In particular, they show that users of products play a fundamental role in the innovative process, as do other contextual factors.

While each constructivist theory of technological change has a unique take on innovation, they share a common thread: they offer both theoretical reasons and empirical facts to undermine the conventional linear model of innovation. If these critiques have merit, then the conceptual lens of risk and entrepreneurship may suffer from a fundamental weakness – a flawed underlying conception of how innovation, particularly in the context of entrepreneurship, actually

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[97] Thomas P. Hughes, NETWORKS OF POWER: ELECTRIFICATION IN WESTERN SOCIETY: 1880–1930 (1983); *see also* Thomas P. Hughes, *Technological Momentum*, *in* DOES TECHNOLOGY DRIVE HISTORY? THE DILEMMA OF TECHNOLOGICAL DETERMINISM 101–113 (Merrit Roe Smith & Leo Marx eds., 1994).

[98] *See* Michel Callon, *The Sociology of an Actor-Network*, *in* MAPPING THE DYNAMICS OF SCIENCE AND TECHNOLOGY: SOCIOLOGY OF SCIENCE IN THE REAL WORLD 19–34 (Michel Callon, John Law & Arie Rip eds., 1986); BRUNO LATOUR, THE PASTEURIZATION OF FRANCE (1984); John Law, *Technology and Heterogeneous Engineering: The Case of Portuguese Expansion*, *in* THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS, *supra* note 95, at 111–34.

[99] *See* Wiebe E. Bijker, *Sociohistorical Technology Studies*, *in* HANDBOOK OF SCIENCE AND TECHNOLOGY STUDIES 251 (Sheila Jasanoff et al. eds., 1995).

[100] WIEBE BIJKER, OF BICYCLES, BAKELITES, AND BULBS (1995).

[101] Modeled on the "empirical program of relativism" (EPOR) in the realm of the sociology of science. *See* Pinch & Bijker, *supra* note 95.

[102] Pinch & Bijker, *supra* note 95, at 28.

[103] *See also* CLAUDE S. FISCHER, AMERICA CALLING – SOCIAL HISTORY OF THE TELEPHONY TO 1940 (1992); SUSAN DOUGLAS, INVENTING AMERICAN BROADCASTING: 1899–1922 (1987).

works. This, in turn, has significant consequences for the role of law in facilitating entrepreneurial activity.

The conceptual lens described in Part III has portrayed law as having two fundamental, reactive roles associated with lowering risks for entrepreneurs: directly lowering the cost for entrepreneurial activity (or increase the gains to be had), and increasing predictability. Either way, law is facilitating, but not directly creating, entrepreneurial opportunities. If, however, constructivist theorists are correct and this conceptual lens is inaccurate because it is incomplete, then demographic groups other than entrepreneurs may play important roles in the innovation process. Assisting these groups may lead to entrepreneurial success. Consequently, lawmakers may want to investigate such unorthodox ways of stimulating the innovative process.

It may also be inaccurate, if we follow constructivist theories, to see in technology the central mechanism that drives the entrepreneurial process. In fact, the legal system may just be another such mechanism. I have already said as much when describing law as an enabler in Part II, explaining how law could function to facilitate entrepreneurial activity. Now, based on the constructivist conceptualization of the innovation process within a socio-technical context, I am suggesting that law performs a much more central mechanism that is embedded in our understanding of the entrepreneurial process itself. Conceived this way, law can actively shape the trajectory of entrepreneurial endeavors by altering how technology is being shaped through societal constraints. In setting these constraints, law's role is not only central, but also active.

This has significant consequences for whether, when, and how legislators ought to employ law to foster entrepreneurial activity. First, if the constructivists are correct and innovation is happening in a heterogeneous network of many elements, there is no inherent benefit to legal inaction. Second, if entrepreneurial activity is multi-directional rather than linear, with multiple paths and a complex interplay of enabling mechanisms, then experimenting with these mechanisms is not an *automatically inferior* strategy, despite the fact that it disrupts long-term predictability. Third, conceived this way, there is no intrinsic disadvantage for using the legal system *preemptively* to try to facilitate the right mix for entrepreneurial success.

Such a conception of law contradicts the conventional wisdom of how the legal system ought to function. Most legal scholars believe that the law should be reactive, slow, and predictable, in order to decrease uncertainty. By contrast, the more nuanced conception of the innovation process put forward by the constructivists suggests that

the law should be used proactively as a mechanism of entrepreneurial facilitation. Legislators intent on stimulating entrepreneurship should seize potential opportunities to create regulatory tensions that entrepreneurs can exploit to upset existing markets with radical new offerings, thereby stimulating economic activity. The constructivist approach also implies that under certain conditions it may be advantageous to legislate in an iterative and adaptive fashion (although this may be difficult to achieve in today's ad hoc-ish political processes). In short, lawmakers desiring to facilitate entrepreneurial activity could use the law in an entrepreneurial fashion, acting swiftly, risking errors, and adapting fast to changing circumstances.

Such behavior creates winners as well as losers. It will likely upset incumbent players in the market, who will lament the loss of predictability. But by creating regulatory friction – by bringing change to the market – these new laws also create entrepreneurial opportunities. Whether and to what extent society ought to help entrepreneurs relative to existing businesses is a political decision, not a legal one, and not one that I address here. What is important, however, is to understand that the legal system offers an effective mechanism of promoting market change that is more powerful than is generally thought.

Using the law in a proactive, opportunistic, flexible, and risk-taking fashion may sound alien to our conventional wisdom, but surprisingly, perhaps it is not completely novel to lawmakers. The regulatory reform of Europe's mobile telephony market is one example. In the late 1980s, the European Commission decided to push for an early regulatory framework for third generation digital wireless telephony.[104] What emerged was a regulatory framework that set a common technical standard (and frequency) and mandated that providers permit subscribers to use each other's networks (what we today call "roaming").[105] The European lawmakers acted early, before all technical details were settled. Its decision to pick a winner and impose roaming was risky and was criticized by many observers at the

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[104] *See* Jacques Pelkmans, *The GSM Standard: Explaining a Success Story*, 8 EUR. J. OF PUB. POL'Y 432 (2001); J. Funk, *Competition Between Regional Standards and the Success and Failure of Firms in the World-Wide Mobile Communication Market*, 22 TELECOMM. POL'Y 419 (1998).

[105] Peter F. Cowhey, Jonathan D. Aronson & John E. Richards, *The Peculiar Evolution of 3G Networks*, *in* HOW REVOLUTIONARY WAS THE DIGITAL REVOLUTION? 291, 314 (John Zysman & Abraham Newman eds., 2006).

time.[106] Moreover, the mobile telephony rules were repeatedly adjusted over the next decade, increasing uncertainty.[107] By contrast, regulators in the United States, did not want to intervene and impose a common technical standard or frequency for digital mobile telephony.[108] Technical innovation and market forces were deemed the preferred mechanisms for entrepreneurial success.

The European approach of using law to facilitate entrepreneurship by disrupting existing economic equilibria – that is, using law in a Schumpeterian sense – brought about a thriving mobile phone market with innumerable entrepreneurial opportunities and assisted in making the European Global System for Mobile Communications (GSM) standard the global leader.[109] In contrast, in the United States, technical innovation and the forces of competition did not prove sufficient for similar entrepreneurial success, partly because the peculiar economics of network industries failed to unleash the forces of competition. A decade-and-a-half after the first GSM network began operating in Europe, the United States remained locked in an inferior position.[110]

The case of GSM offers a vivid example of a more entrepreneurial approach to law. It does not, however, establish that such an approach was the main cause of Europe's GSM success. As we are moving from linear to multi-directional theories of innovation and innovative entrepreneurship, in part stimulated by constructivist theories, we must forego the temptation to single out factors and attribute central causality to them. If the non-linear theories tell us anything, they tell us that success has many "fathers." Law, like technology, is just one mechanism, one tool that may facilitate success. This may also point towards an agenda for future research on the role of law. Through comprehensive case studies to understand

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[106] *See generally* Peter Grindley & David J. Salant, *Standards Wars: The Use of Standard Setting as a means of Facilitating Cartels: Third Generation Wireless Telecommunications Standard Setting*, 3 INT'L J. COMM. L. & POL'Y 2 (1999).

[107] *Id.*

[108] Cowhey, *supra* note 105, at 314. *See generally* Howard A. Shelanski, *Competition and Deployment of New Technology in U.S. Telecommunications*, 2000 U. CHI. LEGAL F. 85 (2000); Megan S. Webster, *Third Generation Wireless: Will the United States Flourish or Flounder in the Global Race to Launch Third Generation Services?*, 13 DEPAUL BUS. L.J. 309 (2000).

[109] *See* Lazer & Mayer-Schönberger *supra* note 32, at 832–33.

[110] *Id.*; *See also* "The Tortoise and the Hare," THE ECONOMIST, Mar. 14, 2002.

whether, how, and why law was able to facilitate entrepreneurship, we may gain a better understanding of the underlying dynamics among the various factors and mechanisms of innovation. This, in turn, may help lawmakers make better use of such entrepreneurial law in the future.

The case also does not prove that entrepreneurial law is always worth the risks involved. As with any entrepreneurial endeavor, for every success there are numerous failures. While the EU had fifteen years of fantastic success in the mobile phone sector, the same mechanism of Schumpeterian law failed to facilitate a similar success in digital television.[111] Using the law in this entrepreneurial fashion can sometimes result in resources spent on endeavors that fail.

Finally, the case also does not prove that using law in a Schumpeterian sense works for all contexts, sectors, and industries. Perhaps the specifics of telecommunication networks – like strong network externalities, lock-in, and switching costs – caused Schumpeterian law to succeed, pointing towards a differentiated approach. The recent rise of Wi-Fi, wireless internet access, offers another success story to tell in the telecommunication context. Here, very early on, the United States Federal Communications Commission designated some radio spectrum as available for use without need for a license.[112] This unlicensed spectrum, once technology was available to make use of it, created vast entrepreneurial opportunities for equipment and service providers alike to provide millions of users with wireless network connectivity at high speeds. It influenced the creation of similar unlicensed spectrums throughout the world and shaped the landscape of internet access.[113]

Whether lawmakers want to be entrepreneurial or not is up to them. Policymakers may well decide that an approach that emulates that of entrepreneurs is not for them. Not every legislature, just like not every human being, has the nerve, the conviction, the drive, and perhaps the foolishness, to be entrepreneurial. Entrepreneurship

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[111] *See* Xuidian Dai et al., *The Rise and Fall of High Definition Television: The Impact of European Technology*, 34 J. COMMON MKT. STUDIES 2, 149–66 (1996).

[112] Authorization of Spread Spectrum Systems Under Parts 15 and 90 of the FCC Rules and Regulations, FCC 85–245 (1985).

[113] *See* Philip J. Weiser & Dale N. Hatfield, *Market Regulation and Innovation: Policing the Spectrum Commons*, 74 FORDHAM L. REV. 663 (2005). *See also* Yochai Benkler, *Some Economics of Wireless Communications*, 16 HARV. J.L. & TECH. 25 (2002) (providing a narrative of the FCC's role in the new spectrum policy).

comes with great risks, but also offers huge rewards for those that succeed.

Moreover, the conclusion derived from a deeper understanding of the multiple components at play in the innovation dynamic offers two important insights. The first is that law can be a powerful and, at times, effective societal mechanism to foster entrepreneurial opportunities (and thus entrepreneurial activity). The second is that there is nothing inherent in this legal mechanism that fosters entrepreneurship any better (or worse) than other mechanisms at society's disposal (like financial subsidies to entrepreneurs). Entrepreneurial law as I have described it may lead to spectacular successes or horrendous failures (and all possible results in between), even in the hands of knowledgeable and careful legislators.

Conceptualizing innovation as a societal process rather than a linear one driven by innovators and technology, however, helps us see law as a component of the innovation dynamic rather than a static element in the societal backdrop against which innovative entrepreneurship takes place. We have much to gain from more and deeper studies of the concrete role of law in the innovation dynamic and I hope we will see significantly more research in the coming years. Ultimately, this may lead us to use the law as an effective tool to shape and stimulate entrepreneurial activity.

V. CONCLUSIONS

The relationship between law and entrepreneurship is frequently described in antagonistic terms. In Part II of this article I gave three reasons why this is a fallacy. Law, I suggested, can act as enabler, leveler, and enforcer that facilitates rather than hinders entrepreneurial activity. To understand that law can be useful does not, however, help lawmakers in comprehending how to use law to stimulate entrepreneurial activity. In Part III, therefore, I offered a comprehensive framework of the relationship between entrepreneurship and law. I suggested an understanding of entrepreneurs as reflective risk-takers. This suggestion was based on recent research in behavioral economics and the psychology of decision-making, which in turn makes it possible to conceptualize the role of law.

However, as I argued in Part IV, such a framework is not without shortcomings, the starkest of which is its reliance on a linear concept of innovative entrepreneurship in which an entrepreneur uses technology as the single agent of change. Recent social theories of technology have shown that innovation is not linear, but multi-

directional, involving more actors and a multitude of mechanisms. Consequently, this points towards a significantly more prominent role of law in the dynamic of innovation and entrepreneurship. Contrary to traditional views of the law as static and reactive, this suggests that law can – if better understood – be used more timely and pro-actively. Such "Schumpeterian" law holds significant promise as a stimulus of entrepreneurship, but is not without risks. This should be reason enough to study the role of law in the innovation dynamic rather than conceptualizing it as both static and exogenous and thus better understand the risks (and rewards) involved in using the law entrepreneurially to stimulate entrepreneurship.